

Storage Case for at least one picture -, audio -, or data
carrying medium such as, for example, a compact disc or DVD

5 The invention relates to a storage case for at least one picture -, audio
-, or data carrying medium such as, for example, a compact disc or
DVD, with two base elements each substantially right-angled and
connected with one another along a first longitudinal edge via a linkage
and enclosing therebetween an inner space for receiving therein a
10 picture - audio - or data carrying medium, whereby the first base
element retains at least one data carrier and the there with
corresponding retaining means, and the second base element is a
cover, which, in the closed condition of the storage case, closes the
inner space of the storage case, and with a securement piece located
15 between the inner sides of the base elements that are turned toward
each other and that can be withdrawn out of the storage case, which
secures the base elements against one another in the region of the
second longitudinal edge that is turned away from the first longitudinal
edge.

20 Secured storage cases are known, for example, from U.S. 5,598,728
as well as U.S. 5,988,376. The securement of the storage cases in
order to secure, in particular, against a theft of the therein-contained
picture -, audio -, or data carrying medium, is effected via a lock
deployable from exteriorly of the storage case. This lock engages, with
25 hook-shaped projections, corresponding recesses on two small sides

of the storage case turned away from one another. Furthermore, two elongate flanges are formed on the lock that completely cover the longitudinal edges of the storage case, whereby both housing halves of the storage case can no longer be opened, at least without the use of force. The effectiveness of these measures against an unpermitted access to the interior of the storage case is still further increased in that the lock is secured on that longitudinal edge of the storage case that otherwise can normally be opened whereas, in contrast, the other longitudinal edge turned away from this longitudinal edge is configured as a hinge that cannot, in any event, be opened without the use of force.

The secured storage cases that are suggested in U.S. 5,598,728 as well as U.S. 5,988,376 are complex in their production and are, therefore, expensive; moreover, these storage cases lead to a clear enlargement of the dimensions of the storage case. Current day storage cases, in contrast, must be producible in a cost-favorable manner in large quantities and, additionally, must be accommodated to the substantially world-wide unitary dimension system, whereby it is undesirable in the retail and warehouse trade for such products to deviate from the already-deployed dimension systems solely for the purpose of an improved securement of the contents of the storage cases.

5 The invention provides a solution to the challenge of creating a storage case that can be produced in large numbers in a cost-favorable manner for storing picture -, audio -, or data carrying medium such as, for example, compact discs or DVDs, whose contents can be secured against unpermitted access and whose dimensions do not exceed the typical measurements for such a storage case.

10 To provide a solution for this challenge, a storage case with the above-noted features is proposed that has a first securement structure connected with the first base element and extending into the interior volume of the storage case that engages the securement piece on the side thereof turned toward the second base element and a second securement structure connected with the second base element and extending into the interior volume of the storage case that engages the
15 securement piece on the side thereof turned toward the first base element .

20 A storage case of this type that is secured against access to its contents comprises the same outer dimensions as the storage case without such an access securement. The finishing-, transport-, and storage systems that are principally available in the wholesale and retail trade need not, therefore, be converted to a different dimension of the storage case, whereby the inventive storage case is, in total, very market friendly.

The storage case can be produced in large quantities in a cost-favorable manner as it is merely assembled from a few, easy-to-produce parts. Thus, the inventive securement structures can be injected directly onto the base elements in that the base elements of a storage case for a CD or DVD are comprised, in any event, of an injected plastic portion such as, for example, polypropylene. The sole separate piece that, in comparison to an unsecured storage case, is found in the inventive storage case, is the securement piece that can be withdrawn out of the storage case. This piece, however, because of its arrangement, structure, and assembly of materials, can be produced, in any event, by simple means and can correspondingly be produced in a cost-favorable manner. In total, the production costs of an inventive secured storage case are only relatively slightly higher than the production costs of a corresponding storage case that is, however, not secured.

It is further of advantage that the assembling-in of the securement structure can already be effected within the production context and, in particular, can already be effected during stockage of the storage cases. A retrofit provision of the storage case with securement systems such as, for example, in connection with retail trade, is no longer required. The storage cases are stocked in the sales spaces just as they are when delivered by the CD producer or the DVD

producer.

Advantageous embodiments of the inventive storage case are described in the dependent claims.

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The invention makes possible further improvements in the production of storage cases via an injection molding process as each base element is assembled from a base surface arranged parallel to the picture-, audio-, or data carrier as well as from rear walls perpendicular to the base surface that close the storage case with their smaller sides and the securement structures are unitarily formed on the base surfaces and project therefrom into the interior volume of the storage case.

10 It is further recommended that the first securement structure projects into the interior space in an arcuate shape and that the second securement structure is configured in the form of a hook-shaped bent latch projecting into the interior space.

20 A particular advantage is provided if the securement piece is a rod that extends parallel to the second longitudinal edge. This leads to a particularly notable space-saving construction configuration of the securement system integrated into the storage case. Moreover, the use of a rod as the securement piece permits an enlargement of the

effective length of the storage case handle over which a mechanical securement is effected. It is particularly of advantage if the rod extends over substantially the entire length of the second longitudinal edge and the securement structures are disposed both in the region of one end as well as in the region of the other end of the second longitudinal edge. Additional securement structures can be arranged, as well, in the middle of this longitudinal edge so that it is not possible to forcibly bend out the base elements of the storage case in this middle region.

In connection with a further preferred embodiment, it is suggested that, relative to withdrawal thereof in a withdrawal direction, the securement piece is blocked in a positive fit manner against at least one of the base elements. Preferably, the securement piece is blocked against movement in the withdrawal direction by a spring-biased blocking piece extending transverse to the withdrawal direction. To release the blockage, magnetic forces can be deployed, in that, for example, the blocking piece is comprised of metal that can be magnetized and is mounted on the securement piece. In this embodiment, the storage case can only first be opened if, initially, the securement piece must first be released from its blockage action via deployment of a magnet before the securement piece can then be withdrawn from the storage case. As the blocking piece, which is comprised of a magnetizable metal, is secured to the securement piece, this blocking piece is no longer in the storage case after the release of the securement. Thus, it

is not possible for the customer, to whom solely the already released storage case has been transferred, to thereafter ascertain, without further effort, the exact location of the blocking piece and to deploy this so-derived knowledge for later manipulations of the storage case.

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In connection with a further embodiment of the storage case, an opening in the housing of the storage case is suggested through which the securement piece can be withdrawn whereby the securement piece is provided with a plate that, in the securement position, closes off the opening. Preferably, the blocking piece is arranged directly behind the plate on the securement piece. In this manner, the blocking piece, whose cross section may, in practice, be somewhat larger than the remaining cross section of the rod-shaped securement piece need only, upon the withdrawal of the securement piece, pass through the slightly enlarged opening but does not, however, need to pass through the otherwise tightly dimensioned pass through cross section of the securement structures.

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With a view toward a cost-favorable production of storage cases, especially in an injection molding process, it is additionally suggested that one of the pair of securement structures be unitarily formed as a single piece with a latch that extends along the inner side of the base element and that serves as a retaining latch for an accompanying folio or book that is disposed on the inner side of the storage case. Such

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latches are regularly formed on the current storage cases for the receipt of a DVD. Additionally, these latches can now be formed as a single piece with the securement structures. This means that the production of the inventive storage case can - after only relatively small variations of the injection tool - be performed on the same production machines on which the conventional storage cases are also produced.

In connection with further embodiments of the storage case, it is suggested that the first and the second securement structure be offset to one another in the longitudinal direction of the securement pieces and that the first securement structure be configured in a pair-wise manner whereby, as viewed in the longitudinal direction of the securement piece, the second securement structure is located between this pair.

Often times, it is desirable to provide in the storage case not only the actual picture-, audio-, or data carrier but, as well, to also provide a printed publication such as, for example, an accompanying folio or book. In this connection, it is further striven to configure this printed publication in as large a format as is possible - that is, to the extent possible, to configure the printed publication only relatively slightly smaller than the inner dimensions of the storage case itself. This space for the largest possible accompanying book is principally diminished by additional security systems arranged in the storage

case. In order that, nonetheless, the complete interior dimension can be maintained available for the provision of a correspondingly large accompanying book, it is proposed, in connection with a further embodiment, that the first base element is a basis part that, together with the cover, forms the housing of the storage case, that the basis part is provided along all four edges with small side walls, and that the first securement structures do not project over the height of the small side walls. In this manner, there remains sufficient room in the interior of the cover in order to provide an accompanying folio or book of normal dimensions or size.

Further advantages and details of an inventive storage case are described hereinafter with reference to the accompanying drawings. The drawings show:

Fig. 1 is a sectional view of the inventive storage case in a closed and secured condition thereof;

Fig. 2 is a view of a first base element configured as a basis piece of the storage case during the opened condition of the storage case;

Fig. 3 is a partial sectional view of the inventive storage case in a partially opened condition; and

Fig. 4 is a partial view along the sectional cut plane IV - IV indicated in Fig. 2.

The hereinafter following description of a storage case describes a storage case whose basic structure substantially corresponds to that of the storage case described in EP 1 083 569 A1, whereupon reference is had to this publication for any details.

The storage case concerns a right-angled plastic box formed of a lower first base element 1 and an upper second base element 2. The first base element 1 is the basis part, the second base element 2 is the cover of the storage case. With reference to details thereof, the housing of the plastic box is comprised of two elongate end walls 3, 4, two short, respectively partitioned end walls 5, 6, an upper right-angled wall 7, and a lower right-angled wall 8. The upper right-angled wall 7 forms the base surface of the second base element 2, the lower right-angled wall 8 forms the base surface of the base element 1 of the storage case. The walls 7, 8 and the end walls 3, 4, 5, 6 enclose the interior space of the storage case in which one or more compact discs 13 are located.

It can be seen in Fig. 1 that the base elements 1, 2 are connected with one another in a hinged manner via a double hinge. The double hinge is located in the region of the elongate rear wall 3. In this connection, the end wall 3 is connected via a first linkage 9a of the double hinge with the base element 1 forming the basis part and is connected via a

second linkage 9b with the base element 2 serving as the cover. In both events, the respective hinge is a so-called film hinge - that is, linkages formed unitarily with both base elements 1, 2 and the end wall 3 via injection molding. This means, at the same time, that the entire housing of the storage case is a single plastic piece produced in an injection process. Polypropylene is particularly suitable as the frequently occurring bending of the linkages 9a, 9b do not lead to any material weakening of this material.

The end wall 3 forms, together with both linkages 9a, 9b, the first longitudinal edge 10 of the storage case. A second longitudinal edge 11 is disposed oppositely this first longitudinal edge 10. The storage case is opened in the region of this second longitudinal edge 11. Fig. 3 shows the storage case in a slightly opened condition in the region of this second longitudinal edge 11. In the location in the region of the second longitudinal edge 11 at which both end walls 4 come together, additional cooperating interconnecting elements 4a can be formed after whose release the storage case can then be swung about the linkages 9a, 9b.

Picture-, audio-, or data carriers can be disposed in the base element 1 of the storage case, whereby the base element 1 is provided with a preferably annular depression 12. In the illustration shown in Fig. 1, a total of two compact discs 13 are located in the depression 12. The

compact discs 13 are held in their central hole by means of a central pin 14 that is a portion of the base element 1. An additional bay 15 is located as well on the inner side of the base element 1 which can, for example, receive a further, in this event, right-angled, data carrier.

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It can be seen in Figs. 1 - 3 that the lower base element 1 is comprised of the same size as the upper base element 2. In particular, the end walls 4, 5, 6 comprise somewhat the same height as those of the upper base element so that the separation plane of the storage case is approximately in the middle thereof. In this manner, a separation into halves of the interior space is achieved. In the lower portion that is solely formed by the base element 1 of the interior space, the compact discs are disposed. Additional space is available in the upper portion of the interior space formed solely by the base element 2, this additional space preferably being used for storage thereof of a printed publication such as, for example, an accompanying book. There can be, for example, written explanations concerning the content for the use of the compact disc in this accompanying book.

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An accompanying book 16 of this type is shown in Fig. 3. It can be recognized that the accompanying book 16 is retained on the inner side 17 of the upper base element 2 via spring-biased tabs or latches 18, whereby the latches 18 are formed as a single piece on the upper base element 2. In connection with the illustrated embodiment, as can

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be particularly seen in the view of Fig. 2, a total of two such latches 18 are available, whereby these latches extend along the inner side 17 of upper wall 7 of the base element 2. These latches 18 serve, as a result of their spring biased dispositions, as retaining latches for the accompanying book 16 lying on the inner side of 17.

While the latches 18 are arranged in the region of the second longitudinal edge 11, the book 16 can be supported on a step 19 in the region of the first longitudinal edge 10 that is formed on the inner side of the linkage end wall 3.

The storage case is provided with a securement system in order to protect the storage case against unpermitted access to its contents. The securement element deployed in this connection is removable from the storage case so that, thereafter, the storage case can be opened and closed in a conventional manner. Details of the securement system are described hereinafter with reference principally to Figures 3 and 4:

The important components of the securement system are a separate securement piece 20 in the form of an elongate rod extending parallel to the second longitudinal edge 11, furthermore, a first securement structure 21 on the first base element 1, and a second securement structure 22 on the second base element 2. In the illustrated example,

the first securement structure 21 is an U-shaped piece that is formed with both of its shanks on the inner side 23 of the wall 8 of the basis piece. In this manner, a type of arc is formed that extends transverse to the longitudinal direction of the separate securement piece 20 and through which this securement piece 20 can be passed.

The second securement structure 21 is unitarily formed with the spring-biased latch 18 and comprises the form of a latch having one formed side and its other end free. This latch is U-shaped in cross section, just as the first securement structure 21 but is, however, configured oppositely to the U-shaped first securement structure 21. The step 22a of the second securement structure 21 that extends substantially parallel to the walls 7, 8, can, in the closed condition of the housing, lie on the inner side 23 of the first base element 1. Upon an alignment of both securement structures 21, 22 as the result of a closed condition of the storage case, there remains a pass through cross section in which the cross section of the rod-shaped securement piece 20 exactly passes. To illustrate this concept, Fig. 3 shows the rod-shaped securement piece 20 in broken lines in the position that the securement piece 20 assumes in the secured condition of the storage case, although Fig. 3 shows the storage case in an unsecured condition, as opposed to a secured condition.

As a result, upon a closed condition of the storage case in conjunction

with an inserted condition of the securement piece 20, an opposed securement of both base elements 1, 2 is set up in that the first securement structure 21 engages the securement piece 20 on the side thereof turned toward the second base element 2 and the second securement structure 22 engages the securement piece 20 on the side thereof turned toward the first base element 1. As a result of this engagement, both of the base elements 1, 2 can no longer be moved away from one another and the housing halves are secured against one another.

It is particularly cost favorable that the direct formation of the latch-shaped second securement structure 22 on the already available latch 18 secures the book 16. The second securement structure 22 and the latch 18 are formed via a common connection section 24 on the inner side 17 of the cover.

The exact position of the individual securement structures can be best seen in Fig. 2. In accordance therewith, the first securement structures 21 are arranged respectively in a pair-wise manner and, in fact, are arranged in the region of the corners as well as once again in the middle of the second longitudinal edge 11 of the storage case. A pair of this type with the reference numbers 21a, 21b is shown in Fig. 2. One can recognize that, as viewed in the longitudinal direction of the securement piece 20, in the closed condition of the box, the second

securement structure 22 is located between this pair 21a, 21b of the first securement structure. This means, at the same time, that the first and the second securement structures 21, respectively, 22, are offset relative to one another in the longitudinal direction of the securement piece 20.

In accordance with Fig. 4, the securement piece 20, which extends parallel to the second longitudinal edge 11 and which is at a spacing to the end wall 4 located thereat, is provided on its one end with a plate 25 fixedly secured thereto. The securement piece 20, including the plate 25, is comprised of plastic. The plate 25 is dimensioned such that it closes the opening in the first base element 1 that is otherwise located thereat. This opening extends, as can be seen in Fig. 4, over the rim of the base element 1 located thereat. The securement piece 20 is engaged by the plate 25 which, for the purpose of better engagement thereof, comprises a small projection 26, and, as a result of the engagement, the securement piece is completely withdrawn in the longitudinal direction out of the housing of the storage case. This withdrawal is, however, only first possible if, initially, the securement piece is released from blockage. This is because the securement piece 20, which is completely located in the storage case, is supported, via a spring-biased blocking piece 27, against a blocking nose 28 of the second base element 2. This blocking piece 27 is preferably comprised of a magnetizeable steel plate and is secured on the

securement piece 20, which is comprised of plastic, such that the blocking piece 27 can be spring biased away from the blocking nose 28. A mechanical access to the blocking piece 27 is, in the closed condition of the storage case, to be sure, not possible. Rather, magnetic forces are to be deployed, in that a repelling magnet from below or an attracting magnet from above is held against the housing of the storage case. In this manner, the blocking piece 27 is moved in the direction indicated by the movement arrow 29 and is thus released from the blocking nose 28. Only upon achieving this condition can the securement piece 20 be completely withdrawn from the storage case, whereupon the storage case is then released from its secured position.

As can be seen in Figures 3 and 4, all of the components of the securement system are formed within the half of the housing formed by the lower base element 1. The housing half formed by the base element 2 remains, thus, completely free for the receipt of the largest possible dimensioned book 16.

Reference Number List

	1	base element, basis piece
	2	base element, cover
5	3	end wall
	4	end wall
	4a	interconnecting element
	5	short end wall
	6	short end wall
10	7	upper wall, base surface
	8	lower wall, basis surface
	9a	linkage
	9b	linkage
	10	first longitudinal edge
15	11	second longitudinal edge
	12	depression
	13	compact disc
	14	pin
	15	bay
20	16	accompanying book
	17	inner side
	18	latch
	19	step
	20	securement piece

	21	first securement structure
	21a	first securement structure
	21b	second securement structure
	22	second securement structure
5	22a	step
	23	inner side
	24	connection section
	25	plate
	26	projection
10	27	blocking piece
	28	blocking nose
	29	movement arrow